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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/997,694 | 11/30/2001 | Gerald Cowley | 301928.3000-100 | 4739 |

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| EXAMINER |
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CHORBAJI, MONZER R

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| ART UNIT | PAPER NUMBER |
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1744

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,694

Applicant(s)

COWLEY ET AL.

Examiner

MONZER R. CHORBAJI

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>05/17/05&04/21/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This non-final action is in response to the communication received on 05/17/2005

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11, 14-37, 39-49 and 52-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt et al (U.S.P.N. 4,681,739) in view of Weaver-Meyers (Controlling Mold on Library Materials With Chlorine Dioxide: An Eight-Year Case Study-IDS).

With respect to claims 1 and 39, the Rosenblatt reference discloses a method for fumigating an enclosed volume (col.4, lines 26-27) that contains contents including Bacillus spores (example 1) requiring fumigation (col.3, lines 22-23). The Rosenblatt reference teaches the following: climatizing the enclosed volume (col.4, lines 13-16), generating chlorine dioxide gas from a source which represent a generator (col.6, lines 1-3), introducing the chlorine dioxide gas into the enclosed volume to be fumigated such that an emitter is required to let the gas in the enclosed volume (col.6, lines 12-14), distributing the chlorine dioxide gas in the enclosed volume (col.4, lines 23-25), maintaining a residual amount of chlorine dioxide gas into the enclosed volume at a level (col.4, lines 20-23) and duration (col.4, lines 23-25) to penetrate the contents as required for the decontamination of Bacillus spores (example 1) and removing the chlorine dioxide gas from the enclosed volume (col.6, lines 21-24) by repeatedly drawing a vacuum and flushing with air (col.8, lines 1-5) since chlorine dioxide is corrosive (col.5, lines 22-25). The Rosenblatt reference fails to teach fumigating a previously habitable enclosed volume and restoring habitability to the volume. The Weaver-Meyers reference teaches fumigating previously habitable enclosed volume with chlorine dioxide gas (page 457, left column, lines 10-25 and right column, lines 4-10). Thus, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the method of the Rosenblatt reference by fumigating habitable enclosed volumes since chlorine dioxide has a strong sporicidal activity as taught by the Weaver-Meyers (page 458, left column, lines 26-30) and by restoring habitability to such enclosed volumes as taught by the Rosenblatt reference due to the corrosive nature of chlorine dioxide (col.5, lines 22-25).

With respect to claims 2, 18, 40 and 53, the Rosenblatt reference teaches removing chlorine dioxide gas from the enclosed volume (col.6, lines 21-23) and then flushes the emitter and the enclosed volume with filtered inert gas (col.6, lines 21-24). Since the Rosenblatt reference teaches that in one embodiment one stream is used to introduce and exhaust the sterilant (col.4, lines 47-50), then when purging occurs, the filtered inert gas will also include the chlorine dioxide generator. In addition, scrubbing of chlorine dioxide gas is disclosed in the Rosenblatt reference (col.6, lines 24-27). Further, the Rosenblatt reference produces chlorine dioxide gas (stripper) from a liquid solution (col.6, lines 1-11) and introduces chlorine dioxide into the enclosed volume using in one embodiment only one stream (col.4, lines 47-50).

With respect to claims 3-4 and 41-42, the Rosenblatt reference generates chlorine dioxide gas from an aqueous solution of chlorine dioxide gas in a liquid (col.6, lines 1-7).

With respect to claims 5 and 43, since the Rosenblatt reference teaches that in one embodiment only one stream is used (col.4, lines 47-50), then the stream (emitter) introduces chlorine dioxide into the enclosed volume and scrubs chlorine dioxide after the end of a sterilization cycle. Thus, the emitter is a stripper (col.6, lines 21-27).

With respect to claims 6 and 44, the Rosenblatt reference teaches the use of a single means for introducing and for scrubbing chlorine dioxide gas (col.4, lines 47-50 and col.6, lines 21-27), but fails to teach placing such single means within a previously habitable enclosed volume. The Weaver-Meyers reference teaches fumigating previously habitable enclosed volume with chlorine dioxide gas (page 457, left column, lines 10-25 and right column, lines 4-10). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Rosenblatt reference by placing a single means for introducing and for scrubbing chlorine dioxide gas within a previously habitable enclosed volume since chlorine dioxide has a strong sporicidal activity as taught by the Weaver-Meyers (page 458, left column, lines 26-30).

With respect to claims 7-10, 14, 24, 45-48, 52 and 57, the Rosenblatt reference teaches the following: adjusting both the relative humidity and the temperature (col.3, lines 59-61 and col.4, lines 13-15), intrinsically avoids condensation by monitoring and controlling the dew point within the enclosed volume (col.4, lines 56-61) and reducing the level of illumination (col.5, lines 19-21).

With respect to claims 11 and 49, the Rosenblatt reference fails to teach fumigating a building or an enclosed portion thereof; however, the Weaver-Meyers reference teaches fumigating the deck area, which is an enclosed portion of the library building with chlorine dioxide gas (page 457, left column, lines 10-25 and right column, lines 4-10). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Rosenblatt reference by

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fumigating portions of a building with chlorine dioxide as taught by the Weaver-Meyers reference since chlorine dioxide has a strong sporicidal activity (page 458, left column, lines 26-30).

With respect to claims 15-17, 19-20, 59 and 61-63, the Rosenblatt reference teaches that the concentration of chlorine dioxide varies and depends on several factors that includes the type of spore or bacteria considered, exposure times (col.4, lines 43-46) and humidity conditions (col.3, lines 37-43). Also, a sample of a wide concentration range is disclosed in col.3, lines 30-36. Thus, one having ordinary skill in the art at the time the invention was made considering the Rosenblatt teachings would realize that the concentration of chlorine dioxide is not limited to a certain range but depending on, for example, the kind of spore present, the concentration is subject to numerous modifications.

With respect to claims 25, 27, 58 and 60, the Rosenblatt reference teaches a temperature of 77 degrees Fahrenheit (col.4, lines 14-16) with a relative humidity above 60% (col.4, lines 59-61) and an exposure time of 10 hours (col.4, lines 44-46).

With respect to claims 26 and 28-30, the Rosenblatt reference teaches that the concentration of chlorine dioxide varies and depends on several factors that includes the type of spore or bacteria considered, exposure time and humidity conditions (col.3, lines 37-43). In addition, a sample of a wide concentration range is disclosed in col.3, lines 30-36. Furthermore, the Rosenblatt reference teaches sterilizing porous organic surfaces without causing appreciable residue deposition and repeatedly flushing items in the chamber with filtered air to remove and maintain a certain amount of acceptable

residual chlorine dioxide (col.8, lines 1-5). From the above teachings, it is inferred that some acceptable residual chlorine dioxide on the sterilized items will be present such that one having ordinary skill in the art at the time the invention was made considering the Rosenblatt teachings would realize that depending on the type of material makeup of items to be sterilized and the acceptable amount of residual chlorine dioxide on the items to be maintained, modification of the residual amount of chlorine dioxide is a matter of routine experimentation.

With respect to claims 34 and 66, the Rosenblatt reference teaches either removing residual chlorine dioxide once (col.6, lines 21-24) or removing residual chlorine dioxide multiple times (col.8, lines 1-5). In addition, the Rosenblatt reference teaches a temperature of 77 degrees Fahrenheit (col.4, lines 14-16) with a relative humidity above 60% (col.4, lines 59-61). Clearly, evacuating and flushing with filtered air intrinsically result in lowering the relative humidity in the chamber such that depending on the acceptable amount of residual chlorine dioxide, relative humidity in the chamber depends on the number of times chlorine dioxide gas is removed from the chamber after the sterilization cycle and modifying the relative humidity is a matter of routine experimentation.

With respect to claims 35 and 67, the Rosenblatt reference either removing residual chlorine dioxide once (col.6, lines 21-24) or removing residual chlorine dioxide multiple times (col.8, lines 1-5) without explicitly disclosing time interval values. This removal step intrinsically occurs over a period of time interval such that depending on the acceptable amount of residual chlorine dioxide present on the sterilized items and

the number of removal cycles, modifying the time interval for chlorine dioxide removal is a matter of routine experimentation.

With respect to claims 21-23, 31-33, 54-56 and 64-65, the Rosenblatt reference teaches the following: the enclosed volume undergoes a vacuum (col.4, lines 34-35), the chlorine dioxide solution inherently has an equilibrium partial pressure (col.6, lines 1-7), the sterilant gas penetrates the contents in the enclosed volume (abstract, lines 1-10) and the enclosed volume requiring fumigation is contaminated with any type of spore (abstract, lines 11-13) including *Bacillus Anthracis*. Furthermore, the Rosenblatt reference discloses various gram-positive spores, *Bacillus Subtilis* (col.6, lines 48-51).

With respect to claims 36-37 and 68-69, the Rosenblatt reference teaches that in one embodiment only one stream is used (col.4, lines 47-50) to introduce the sterilant into the enclosed volume and to scrub the sterilant from the enclosed volume (col.6, lines 12-24). In addition, the Rosenblatt reference removes the sterilant by a detoxification treatment (col.6, lines 24-27).

5. Claims 12 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt et al (U.S.P.N. 4,681,739) in view of Weaver-Meyers (Controlling Mold on Library Materials With Chlorine Dioxide: An Eight-Year Case Study-IDS) as applied to claims 1 and 39 and further in view of Smith et al (U.S.P.N. 4,780,333).

With respect to claims 12 and 50, both the Rosenblatt reference and the Weaver-Meyers reference fail to provide a vehicle as an example for the enclosed volume; however, the Smith reference teaches treating a vehicle (col.6, lines 32-36). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention

was made to modify the Rosenblatt reference and the Weaver-Meyers reference methods to include treating a vehicle since there is an established relationship between respiratory ailment symptom and automobile air conditioning (col.1, lines 52-54).

6. Claims 13 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt et al (U.S.P.N. 4,681,739) in view of Weaver-Meyers (Controlling Mold on Library Materials With Chlorine Dioxide: An Eight-Year Case Study-IDS) as applied to claims 1 and 39 and further in view of Halaby, Jr. et al (U.S.P.N. 4,272,019).

With respect to claims 13 and 51, both the Rosenblatt reference and the Weaver-Meyers reference fail to teach distributing the sterilant by using heating ventilation and an air conditioning system; however, the Halaby reference teaches distributing deodorants and insecticides using an air conditioning system (col.11, lines 5-14 and lines 24-29). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Rosenblatt reference and the Weaver-Meyers reference methods to include using air conditioning systems in order to gain access to another area to be treated (col.11, lines 26-29).

7. Claims 38 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenblatt et al (U.S.P.N. 4,681,739) in view of Weaver-Meyers (Controlling Mold on Library Materials With Chlorine Dioxide: An Eight-Year Case Study-IDS) as applied to claims 37 and 69 and further in view of Spink (U.S.P.N. 5,565,180).

With respect to claims 38 and 70, both the Rosenblatt reference and the Weaver-Meyers reference fail to teach removing the sterilant using an aqueous mixture of a bisulfite and caustic; however, the Spink reference teaches that the use of an aqueous

mixture of a bisulfite and caustic (col.20, lines 11-16) is known for treating gases including chlorine dioxide (col.14, lines 40-44 and col.19, lines 28-32). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute one known detoxification process as disclosed in the Rosenblatt reference for another (the Spink reference, col.20, lines 11-16) since such an aqueous mixture removes chlorine dioxide gas from emissions (col.19, lines 30-32).

Response to Arguments

8. Applicant's arguments with respect to claims 1-70 have been considered but are moot in view of the new ground(s) of rejection.

On page 7 of the Remarks section, applicant argues that, "First, Smith attempts to reduce the humidity level in the air conditioning duct when humidity levels approach 70%." The Smith reference is only applied to show that treating vehicles is known and not for manipulating humidity levels. The Smith reference teaches treating a vehicle (col.6, lines 32-36). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Rosenblatt reference and the Weaver-Meyers reference methods to include treating a vehicle since there is an established relationship between respiratory ailment symptom and automobile air conditioning (col.1, lines 52-54).

On page 7 of the Remarks section, applicant argues that, "No evidence from the prior art is presented as required by law, only a conclusory statement of what one of ordinary skill in the art would do." The Halaby reference provides a motivation for applying the concepts of the Rosenblatt reference and the Weaver-Meyers reference to

HVAC systems such that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Rosenblatt reference and the Weaver-Meyers reference methods to include using air conditioning systems in order to gain access to another area to be treated (col.11, lines 26-29).

On page 7 of the Remarks section, applicant argues that, "No evidence from the prior art is presented as required by law, only a conclusory statement of what one of ordinary skill in the art would do." The Spink reference provides a motivation for including an aqueous mixture of a bisulfite and caustic to the concepts of the Rosenblatt reference and the Weaver-Meyers reference to HVAC systems such that it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute one known detoxification process as disclosed in the Rosenblatt reference for another (the Spink reference, col.20, lines 11-16) since such an aqueous mixture removes chlorine dioxide gas from emissions (col.19, lines 30-32).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Aoyagi reference (U.S.P.N. 6,363,734) teaches applying chlorine dioxide to rooms within a building.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

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11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN KIM can be reached on (571) 272-1142. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monzer R. Chorbaji *MRC*
Patent Examiner
AU 1744
08/03/2005

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